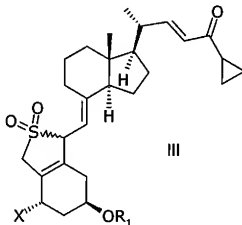


AMENDMENTS TO THE CLAIMS

1.-29. (Cancelled)

30. (Previously Presented) A method of reducing a compound of general structure III,

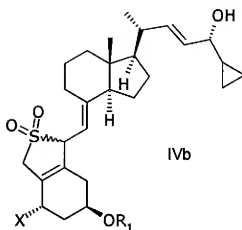
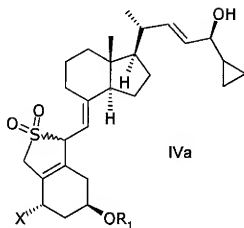


wherein X represents either hydrogen or OR₂,

and wherein R₁ and R₂ may be the same or different and represent hydrogen, or a hydroxy protecting group,

in an inert solvent with a chiral reducing agent or with a reducing agent in the presence of a chiral auxiliary,

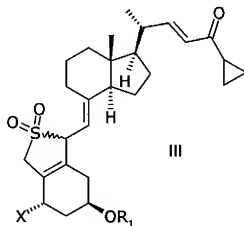
to give a mixture of compounds of general structure IVa and IVb,



which is enriched with IVa, wherein X, R_1 , and R_2 are as defined above.

31. (Currently Amended) A method for producing calcipotriol ((5Z, 7E, 22E, 24S)-24-cyclopropyl-9,10-secochola-5,7,10(19),22-tetraene-1 α -3 β -24-triol) or calcipotriol monohydrate comprising the steps of:

(a) reducing a compound of general structure III according to claim 30,



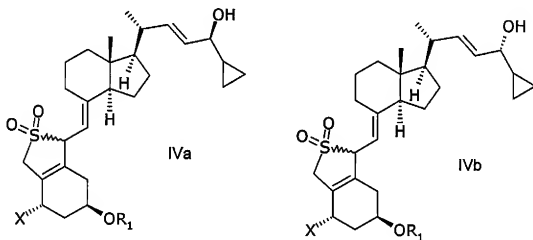
wherein X represents OR_2 ,

and wherein R_1 and R_2 may be the same or different and represent hydrogen or a hydroxy protecting group,

in an inert solvent with a chiral reducing agent or with a reducing agent in the presence of a chiral auxiliary,

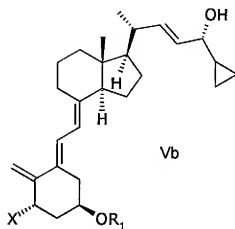
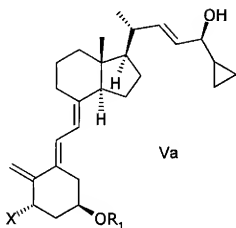
to give a mixture of compounds of general structure IVa and IVb,

which is enriched with IVa,



wherein X, R_1 and R_2 are as defined above;

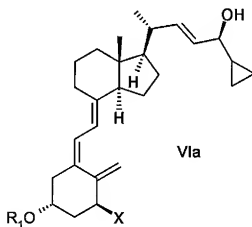
(b) reacting the mixture of compounds of general structure IVa and IVb, which is enriched with IVa, in the presence of a base to give a mixture of compounds of general structure Va and Vb, which is enriched with Va,



wherein X, R₁ and R₂ are as defined above;

(c) separating the compound of general structure Va from the mixture of compounds of general structure Va and Vb which is enriched with Va, wherein X, R₁ and R₂ are as defined above;

(d) isomerising the compound of general structure Va to the compound of general structure VIa,

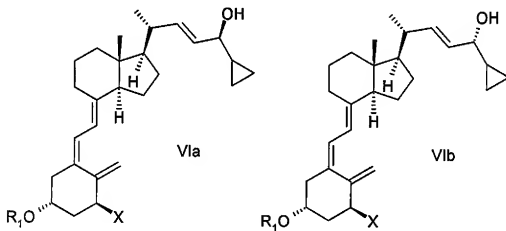


wherein X, R₁ and R₂ are as defined above; and

(e) when R_1 and/or R_2 are not hydrogen, removing the hydroxy protecting group(s) R_1 and/or R_2 of the compound of general structure VIa to generate calcipotriol or calcipotriol monohydrate.

32. (Previously Presented) A method for producing calcipotriol or calcipotriol monohydrate comprising steps (a) – (b) of claim 31 and further comprising the steps of:

(f) isomerising the mixture of compounds of general structure Va and Vb, wherein X, R_1 and R_2 are as defined in claim 2, which is enriched with Va, to a mixture of compounds of general structure VIa and VIb, which is enriched with VIa,



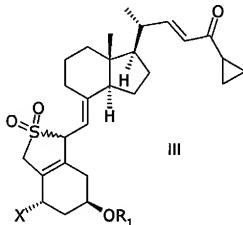
wherein X, R_1 and R_2 are as defined above;

(g) separating the compound of general structure VIa from the mixture of compounds of general structure VIa and VIb which is enriched with VIa, wherein X, R_1 and R_2 are as defined above;

(h) when R_1 and/or R_2 are not hydrogen, removing the hydroxy protecting group(s) R_1 and/or R_2 of the compound of general structure VIa to generate calcipotriol or calcipotriol monohydrate.

33. (Currently Amended) A method for producing calcipotriol {(5Z, 7E, 22E, 24S)-24-cyclopropyl-9,10-secochola-5,7,10(19),22-tetraene-1 α -3 β -24-triol} or calcipotriol monohydrate comprising the steps of:

(j) reducing a compound of general structure III according to claim 30,



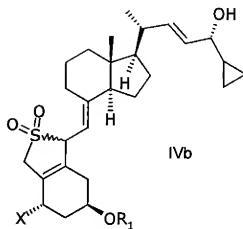
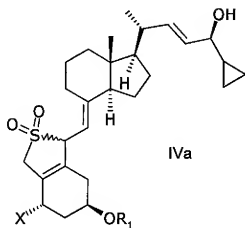
wherein X represents hydrogen,

and wherein R₁ represents hydrogen or a hydroxy protecting group,

in an inert solvent with a chiral reducing agent or with a reducing agent in the presence of a chiral auxiliary,

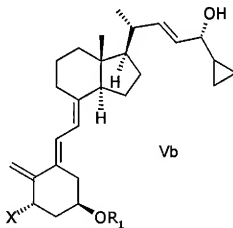
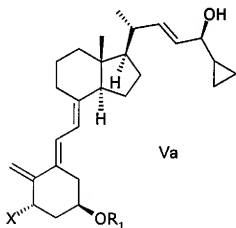
to give a mixture of compounds of general structure IVa and IVb,

which is enriched with IVa,



wherein X and R_1 are as defined above;

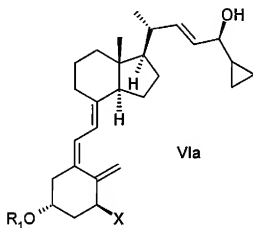
(k) reacting the mixture of compounds of general structure IVa and IVb, which is enriched with IVa, in the presence of a base to give a mixture of compounds of general structure Va and Vb, which is enriched with Va,



wherein X and R_1 are as defined above;

(l) separating the compound of general structure Va from the mixture of compounds of general structure Va and Vb which is enriched with Va, wherein X and R_1 are as defined above;

- (m) hydroxylating the compound of general structure Va with a suitable hydroxylating agent, wherein X and R₁ are as defined above to give a compound of general structure Va, wherein X represents OR₂ and R₂ represents hydrogen, and wherein R₁ is as defined above;
- (o) isomerising the compound of general structure Va to the compound of general structure VIa,

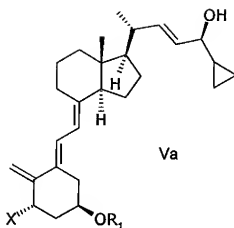


wherein X, R₁ and R₂ are as defined above; and

- (p) when R₁ is not hydrogen, removing the hydroxy protecting group R₁ of the compound of general structure VIa to generate calcipotriol or calcipotriol monohydrate.

34. (Previously Presented) A method for producing calcipotriol or calcipotriol monohydrate comprising steps (j) – (l) of claim 33 and further comprising the steps of:

- (q) protecting the C-24 hydroxy group of the compound of general structure Va,

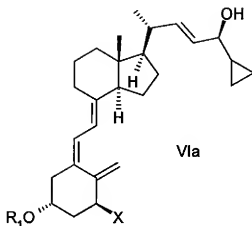


wherein X represents hydrogen, and wherein R₁ represents hydrogen or a hydroxy protecting group, with a hydroxy protecting group;

(r) hydroxylating the C-24 hydroxy protected compound of general structure Va with a suitable hydroxylating agent, wherein X and R₁ are as defined above to give a C-24 hydroxy protected compound of general structure Va, wherein X represents OR₂ and R₂ represents hydrogen, and wherein R₁ is as defined above;

(s) removing the C-24 hydroxy protecting group of the compound of general structure Va;

(t) isomerising the compound of general structure Va to the compound of general structure VIa,



wherein X, R₁ and R₂ are as defined above; and

(u) when R₁ is not hydrogen, removing the hydroxy protecting group R₁ of the compound of general structure VIa to generate calcipotriol or calcipotriol monohydrate.

35. (Cancelled)

36. (Previously Presented) The method according to claim 30, wherein the reducing agent is a borane derivative.

37. (Currently Amended) The method according to claim [[35]] 30, wherein the reducing step is with a reducing agent in the presence of a chiral auxiliary and wherein the reducing agent is *N,N*-diethylaniline-borane, borane-tetrahydrofuran, or borane dimethylsulfide.

38. (Currently Amended) The method according to claim [[35]] 30, wherein the reducing step is with a reducing agent in the presence of a chiral auxiliary and wherein the chiral auxiliary is a chiral 1,2-amino-alcohol.

39. (Currently Amended) The method according to claim [[35]] 30, wherein the reducing step is with a reducing agent in the presence of a chiral auxiliary and wherein the chiral auxiliary is a chiral *cis*-1-amino-2-indanol derivative.

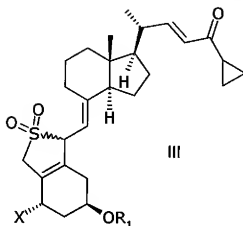
40. (Currently Amended) The method according to claim [[35]] 30, wherein the reducing step is with a reducing agent in the presence of a chiral auxiliary and wherein the chiral auxiliary is (*1S,2R*)-(-)-*cis*-1-amino-2-indanol.

41. (Previously Presented) The method according to claim 30, wherein the inert solvent is toluene, *tert*-butyl methyl ether, tetrahydrofuran, or mixtures thereof.

42. (Previously Presented) The method according to claim 30, wherein the mixture of compounds of general structure IVa and IVb obtained by reducing a compound of general structure III has a molar ratio of IVa:IVb which is at least 56:44.

43. (Previously Presented) The method according to claim 40, wherein the reducing step is carried out at a temperature between 10-20°C.

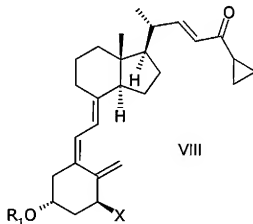
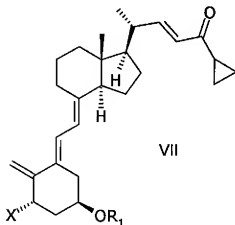
44. (Currently Amended) A method for producing a compound of general structure III,



wherein X represents either hydrogen or OR₂,

and wherein R₁ and R₂ may be the same or different and represent hydrogen, or a hydroxy protecting group,

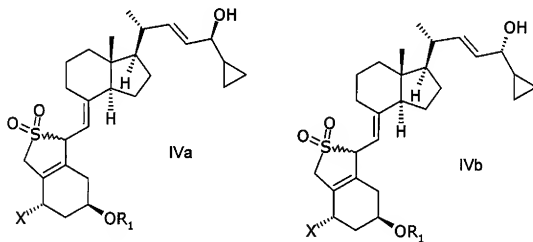
by reacting a compound of general structure VII or VIII,



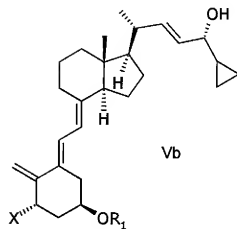
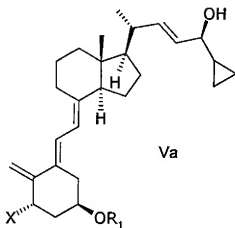
wherein X , R_1 and R_2 are as defined above,
with sulphur dioxide.

45. - 46. (Cancelled)

47. (Previously Presented) A method of reacting the mixture of compounds of general structure IVa and IVb,



wherein X represents either hydrogen or OR_2 ,
and wherein R_1 and R_2 may be the same or different and represent hydrogen, or a hydroxy protecting group,
which is enriched with IVa, in the presence of a base to give a mixture of compounds of general structure Va and Vb, which is enriched with Va,



wherein X, R₁, and R₂ are as defined above.

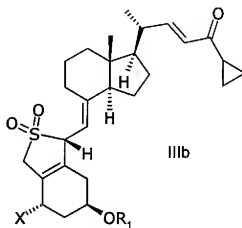
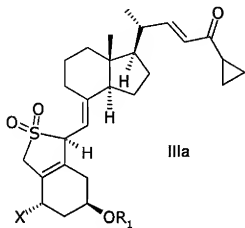
48. (Currently Amended) A method according to claim 30, ~~44, or 47~~, wherein X represents OR₂.

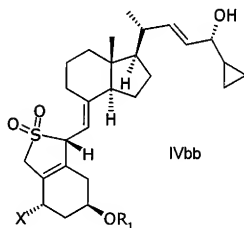
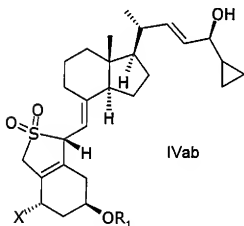
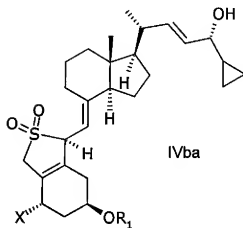
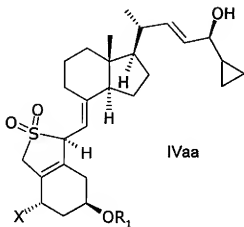
49. (Previously Presented) A method according to claim 48, wherein R₁ and/or R₂ represent alkylsilyl.

50. (Previously Presented) A method according to claim 48, wherein R₁ and/or R₂ represent *tert*-butyldimethylsilyl.

51. (Currently Amended) A method for producing calcipotriol {(5Z, 7E, 22E, 24S)-24-cyclopropyl-9,10-secochola-5,7,10(19),22-tetraene-1 α -3 β -24-triol} or calcipotriol monohydrate comprising the method of claim 30, ~~44, or 47~~.

52. (Currently Amended) A compound of general structure IIIa [(or)], IIIb, IVaa, IVab, IVba, IVbb, IVb, or mixtures thereof,





wherein X represents either hydrogen or OR₂,

and wherein R₁ and R₂ may be the same or different and represent hydrogen, or a hydroxy protecting group.

53. (Cancelled)

54. (Currently Amended) A compound according to claim 52 or 53, wherein X represents OR₂.

55. (Previously Presented) A compound according to claim 54, wherein R_1 and R_2 represent alkylsilyl.

56. (Previously Presented) A compound according to claim 54, wherein R_1 and R_2 represent *tert*-butyldimethylsilyl.

57. (Previously Presented) A compound according to claim 54, wherein R_1 and R_2 represent hydrogen.

58. (Cancelled)